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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ROSE, KERRI M

ART UNIT

PAPER NUMBER

2416

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/541,416	Applicant(s) SALOMONS, EDUARD W.	
	Examiner KERRI M. ROSE	Art Unit 2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to because the boxes in fig. 2 should include labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 6, 8-10, 12-13, 15-18, 20, and 22-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Parkkinen et al. (US 7,072,366).

5. In regards to claim 1, Parkkinen discloses apparatus for distributing audio-visual content over at least two channels (Figure 11 and column 6 lines 25-27 disclose an apparatus with at least two channels for distributing audio/visual content.), the total channel rate being unpredictable (Col. 1 lines 40-44 indicate the channel rate may vary.), the apparatus comprising a coder (Fig. 11 elements 500 and 400 represent encoders for each channel.) and a data buffer (Fig. 11 discloses multiple buffers including elements 240, 250, 431, and 432.) for each channel, and a transmission controller (Fig. 11. 421 and 423 are controllers.) arranged to control the transmission of data from the buffers and to provide for the retransmission of data which is deemed not to have been received correctly (Col. 13 lines 26-29 indicate data may be retransmitted for error correction.), the apparatus comprising a joint bit-rate controller (Col. 8 lines 14-27 indicate rate control may be done using separate or joint bit-rate controller.) arranged to control each of the coders to provide data at a rate which is dependent at least in part on a data production rate and on a data transmission rate (Col. 7 lines 6-18 indicate the target data transmission rate, current data transmission rate, and buffer occupancy level may be used as control information to adjust the data rate.).

6. In regards to claim 2, Parkkinen discloses apparatus as claimed in claim 1, in which the coders are controlled to provide data at a rate which is dependent in part on the amount of data

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awaiting transmission (Col. 7 lines 6-18 indicate the bit rate is at least partly dependent upon the current fill level of the buffer.).

7. In regards to claim 3, Parkkinen discloses apparatus as claimed in claim 2, in which the coders are controlled to provide data at a rate which is dependent in part on the difference between the amount of data awaiting transmission and a target amount (Col. 7 lines 6-18 indicate the channel transmission capacity is dynamic and to prevent overflow the target data rate is adjusted depending upon the buffer capacity and fill level, i.e. how much data is awaiting transmission.).

8. In regards to claim 4, Parkkinen discloses apparatus as claimed in claim 3, in which the coders are controlled to provide data at a rate which is dependent on the difference multiplied by a control parameter (Col. 8 line 54 indicates a PI controller may be used. PI control includes multiplying a difference by a control parameter to determine system adjustments.).

9. In regards to claim 6, Parkkinen discloses apparatus as claimed in any preceding claim, in which the joint bit rate controller is arranged to control each coder to provide data at a rate which is dependent in part on an average data transmission rate and an average data production rate (Col. 7 lines 6-18 indicate the target data transmission rate, current data transmission rate, and buffer occupancy level may be used as control information to adjust the data rate. Col. 6 line 47 indicates either average or maximum rates may be used.).

10. In regards to claim 8, Parkkinen discloses apparatus as claimed in claim 6, in which the estimated channel rate is calculated from historical channel rate data (Col. 8 line 54 indicates a PI controller may be used. A PI controller uses past performance data to calculate adjustments for future inputs.).

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11. In regards to claim 9, Parkkinen discloses apparatus as claimed in claim 1, in which the joint bit rate controller is arranged to control a coder to provide data at a rate which is dependent in part on the characteristics of the channel associated with the coder (Col. 8 line 54 indicates a PI controller may be used. PI control is affected by characteristics of the channel. Additionally, col. 7 lines 49-67 indicates each channel may be encoded differently and use a different rate depending on whether the channel is carrying audio or visual information and the preferences of the user.).

12. In regards to claim 10, Parkkinen discloses apparatus as claimed in claim 9, in which the joint bit rate controller is arranged to control the coder to provide data at a rate which is dependent in part on the channel rate of the channel associated with the coder (col. 7 lines 49-67 indicates each channel may be encoded differently and use a different rate depending on whether the channel is carrying audio or visual information and the preferences of the user.).

13. In regards to claim 12, Parkkinen discloses apparatus as claimed in claim 1, in which the joint bit-rate controller is arranged to apply a control signal to a control input of each coder which determines directly the quality of encoding used (Col. 7 lines 49-67 indicates each channel may be encoded differently and use a different rate depending on whether the channel is carrying audio or visual information and the preferences of the user. The preference information is a control signal which directly affects the quality and output data rate used. For example, if audio is valued more than visual data, the audio data may be encoded with a better quality codec, i.e. one that ensures less data loss, and sent at a preferred data rate over the visual data.).

14. In regards to claim 13, Parkkinen discloses apparatus as claimed claim 1, in which the joint bit-rate controller is arranged to apply a control signal to a control input of each coder

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which determines directly the output data rate of the coder (Col. 7 lines 49-67 indicates each channel may be encoded differently and use a different rate depending on whether the channel is carrying audio or visual information and the preferences of the user. The preference information is a control signal which directly affects the quality and output data rate used. For example, if audio is valued more than visual data, the audio data may be encoded with a better quality codec, i.e. one that ensures less data loss, and sent at a preferred data rate over the visual data.).

15. In regards to claim 15, Parkkinen discloses a method of distributing audio-visual content over at least two channels (Figure 11 and column 6 lines 25-27 disclose an apparatus with at least two channels for distributing audio/visual content.), the total channel rate being unpredictable (Col. 1 lines 40-44 indicate the channel rate may vary.), the method comprising providing a coder (Fig. 11 elements 500 and 400 represent encoders for each channel.) and a data buffer (Fig. 11 discloses multiple buffers including elements 240, 250, 431, and 432.) for each channel, controlling the transmission (Fig. 11. 421 and 423 are controllers.) of data from the buffers and controlling the retransmission of data which is deemed not to have been received correctly (Col. 13 lines 26-29 indicate data may be retransmitted for error correction.), the method comprising controlling each of the coders (Col. 8 lines 14-27 indicate rate control may be done using separate or joint bit-rate controller.) to provide data at a rate which is dependent at least in part on a data production rate and on a data transmission rate (Col. 7 lines 6-18 indicate the target data transmission rate, current data transmission rate, and buffer occupancy level may be used as control information to adjust the data rate.).

16. Claims 16-18, 20, and 22-24 are rejected upon the same grounds as claims 2-4, 6, and 8-10 respectively.

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 5, 7, 11, 19, 21, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parkkinen et al. (US 7,072,366) in view of Keesman ("Multi-Program Video Compression Using Joint Bit-Rate Control," supplied by applicant.).

19. In regards to claim 5, Parkkinen discloses apparatus as claimed in claim 1, but is silent in which the joint bit rate controller is arranged to control each coder to provide data at a rate which is dependent in part on the complexity of the signal with which that coder is fed.

Keesman discloses that the required bit rate with VBR compression is dependent upon the complexity of the signal in the second full paragraph on page 22.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adjust the data rate, as taught by Parkkinen, dependent upon the signal complexity, as taught by Keesman because VBR compression is more efficient and therefore more desirable, as taught in the second full paragraph on page 22 and the first full paragraph on page 23.

20. In regards to claim 7, Parkkinen discloses apparatus as claimed in claim 5, in which the joint bit rate controller is arranged to control the coders to provide data at a rate which is dependent also on an estimated channel rate at a relevant time in the future (Parkkinen col. 7 lines 6-18 discloses that changes in the data rate may be prompted by an expected increase of transmission in the future in order to prevent overflow.).

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21. In regards to claim 11, Parkkinen discloses apparatus as claimed in claim 10, but is silent in which the channel rate is calculated from the proportion of data bits transmitted to the total number of transmitted units.

Keesman discloses that allocation is dependent upon the proportion of complexity required in equation 10 and the last fully paragraph on page 30. More complexity means more bits must be transmitted. Therefore the channel rate is calculated based upon a proportion of data bits.

It would have been obvious to one of ordinary skill in the art at the time of the invention to calculate the data rate based on a proportion, as taught by Keesman in the joint bit rate controller taught by Parkkinen because doing so allows for better overall quality and optimum allocation, as taught by Keesman in the last full paragraph on page 30.

22. Claims 19, 21, and 25 are rejected upon the same grounds as claims 5, 7, and 11 respectively.

23. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parkkinen et al. (US 7,072,366) in view of applicant admitted prior art (APA).

24. In regards to claim 14, Parkkinen discloses apparatus as claimed in claim 1, but is silent in which the transmission controller is an earliest deadline first scheduler.

Applicant admits that earliest deadline first is a known algorithm for prioritizing data transmissions in lines 13-15 on page 4 of the specification.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use earliest deadline first, as taught by applicant, in the joint controller of Parkkinen because

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doing so helps ensure all data arrives at the receiver in a timely fashion. If data arrives too late it cannot be used and is no better than data that is lost in transmission.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KERRI M. ROSE whose telephone number is (571) 272-0542.

The examiner can normally be reached on Monday through Thursday, 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung MOE can be reached on (571) 272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2416

/Kerri M Rose/
Examiner, Art Unit 2416